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NON-INVASIVE FRACTIONAL FLOW RESERVE ASSESSMENT BASED ON MULTI-SLICE COMPUTED TOMOGRAPHY FIVE YEAR AFTER ABSORB BIORESORBABLE SCAFFOLD IMPLANTATION

i2 Poster Contributions
McCormick Place South, Hall A
Saturday, March 24, 2012, 9:30 a.m.-Noon

Session Title: Non-invasive Imaging
Abstract Category: 16. PCI - DES (clinical/outcomes)
Presentation Number: 615

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Background: Fractional flow reserve (FFR) assessment using multi-slice computed tomography (MSCT) with computational dynamic flow simulation is emerging as a non-invasive anatomical and functional assessment tool in patients with narrowed native coronary arteries. The non-invasive FFR assessment methods can be applied in the vessel previously treated with fully bioresorbable scaffolds made of polylactides, since unlike metallic stents the coronary artery is free from blooming artifacts caused by metal. The objective of this study was therefore to show the feasibility of non-invasive FFR assessment in patients who had received fully bioresorbable everolimus-eluting ABSORB scaffolds 5 years before.

Methods: In the ABSORB cohort A trial, 30 patients with a single de novo coronary artery lesion were treated with the fully resorbable everolimus-eluting ABSORB scaffold (Abbott Vascular, CA, US). The patients underwent MSCT imaging at 5 years. Acquired MSCT data was analyzed in an independent corelab(Cardialysis, Netherlands) for quantitative analysis of lumen dimensions, and was further processed for calculation of fractional flow reserve in another independent corelab (Heart Flow, Redwood City, CA, USA).

Results: In the preliminary analysis of 10 patients, non-invasive FFR analysis was feasible in 7 cases, while severe artifact hindered the analysis in 3 cases. All scaffolded segments were patent. In the treated vessel, FFR was >0.80 in all cases except for one case with a FFR value of 0.76. The FFR of the treated vessel was on average 0.88±0.06. In addition, functionally significant stenosis in non-treated vessels was found in 2 patients.

Conclusions: The current investigation shows the feasibility of MSCT FFR assessment in patients with fully bioresorbable ABSORB scaffolds. Complete data and analysis will be presented at the time of the meeting.